FINTECH BOOTCAMP 2021
COLUMBIA UNIVERSITY

# JOE'S REAL-TIME CURRENCY CONVERTER PROJECT

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# Goals

Joe's Real-time Currency Converter. This project contains a CLI python-based project that has a variety of features. Through this project, you convert one currency to another currency, view the top 10 currencies, and view the bottom 10 lowest currencies. All through the help of the useful CLI system. Also, we introduce a new library called emoji.

# Objectives

- Get real-time rates for currencies.
- To be able to convert between domestic and foreign currencies
- To be able to view the highest rates currencies in real-time
- To be able to view lowest rates currencies in real-time
- Create a CLI user friendly

# API

I use Exchange Rate API to get the latest rates for currencies

https://api.exchangerate-api.com/v4/latest/USD


```
{"provider":"https://www.exchangerate-api.com","WARNING_UPGRADE_TO_V6":"https://www.exchangerate-
api.com/docs/free","terms":"https://www.exchangerate-api.com/terms","base":"USD","date":"2021-11-30","time_last_updated":1638230401,"rates":
{"USD":1,"AED":3.67,"AFN":94.22,"ALL":107.71,"AMD":481.64,"ANG":1.79,"AOA":584.25,"ARS":100.66,"AUD":1.4,"AWG":1.79,"AZN":1.7,"BAM":1.73,"BBD":2,"BD
T":85.73,"BGN":1.73,"BHD":0.376,"BIF":1988.2,"BMD":1,"BND":1.37,"BOB":6.88,"BRL":5.62,"BSD":1,"BTN":75.26,"BWP":11.78,"BYN":2.54,"BZD":2,"CAD":1.27,
"CDF":1998.82,"CHF":0.924,"CLP":831.29,"CNY":6.39,"COP":3965.28,"CRC":635.55,"CUC":1,"CUP":25,"CVE":97.74,"CZK":22.76,"DJF":177.72,"DKK":6.61,"DOP":
56.5,"DZD":138.93,"EGP":15.71,"ERN":15,"ETB":48.12,"EUR":0.886,"FJD":2.12,"FKP":0.751,"FOK":6.61,"GBP":0.751,"GEL":3.1,"GGP":0.751,"GHS":6.12,"GIP":
0.751,"GMD":52.62,"GNF":9536.72,"GTQ":7.73,"GYD":209.01,"HKD":7.8,"HNL":24.09,"HRK":6.68,"HTG":98.83,"HUF":326.86,"IDR":14280.09,"ILS":3.18,"IMP":0.
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L":17.74,"MGA":3981.83,"MKD":54.73,"MMK":1780.82,"MNT":2846.68,"MOP":8.03,"MRU":36.21,"MUR":43.43,"MVR":15.4,"MWK":815.14,"MXN":21.77,"MYR":4.23,"MZ
N":64,"NAD":16.15,"NGN":422.32,"NIO":35.2,"NOK":9.05,"NPR":120.42,"NZD":1.47,"OMR":0.384,"PAB":1,"PEN":4.03,"PGK":3.53,"PHP":50.39,"PKR":175.58,"PLN
":4.16,"PYG":6856.91,"QAR":3.64,"RON":4.38,"RSD":104.48,"RUB":74.91,"RWF":1034.48,"SAR":3.75,"SBD":8,"SCR":13.66,"SDG":438.69,"SEK":9.1,"SGD":1.37,"
SHP":0.751,"SLL":10967.22,"SOS":577.94,"SRD":21.53,"SSP":311.53,"STN":21.72,"SYP":2503.75,"SZL":16.15,"THB":33.73,"TJS":11.26,"TMT":3.5,"TND":2.89,"
TOP":2.27,"TRY":12.45,"TTD":6.76,"TVD":1.4,"TWD":27.79,"TZS":2299.73,"UAH":27.14,"UGX":3562.1,"UYU":44.01,"UZS":10766.81,"VES":4.59,"VND":22663.33,"
VUV":112.7,"WST":2.59,"XAF":581.45,"XCD":2.7,"XDR":0.714,"XOF":581.45,"XPF":105.78,"YER":250.13,"ZAR":16.15,"ZMW":17.72}}
```
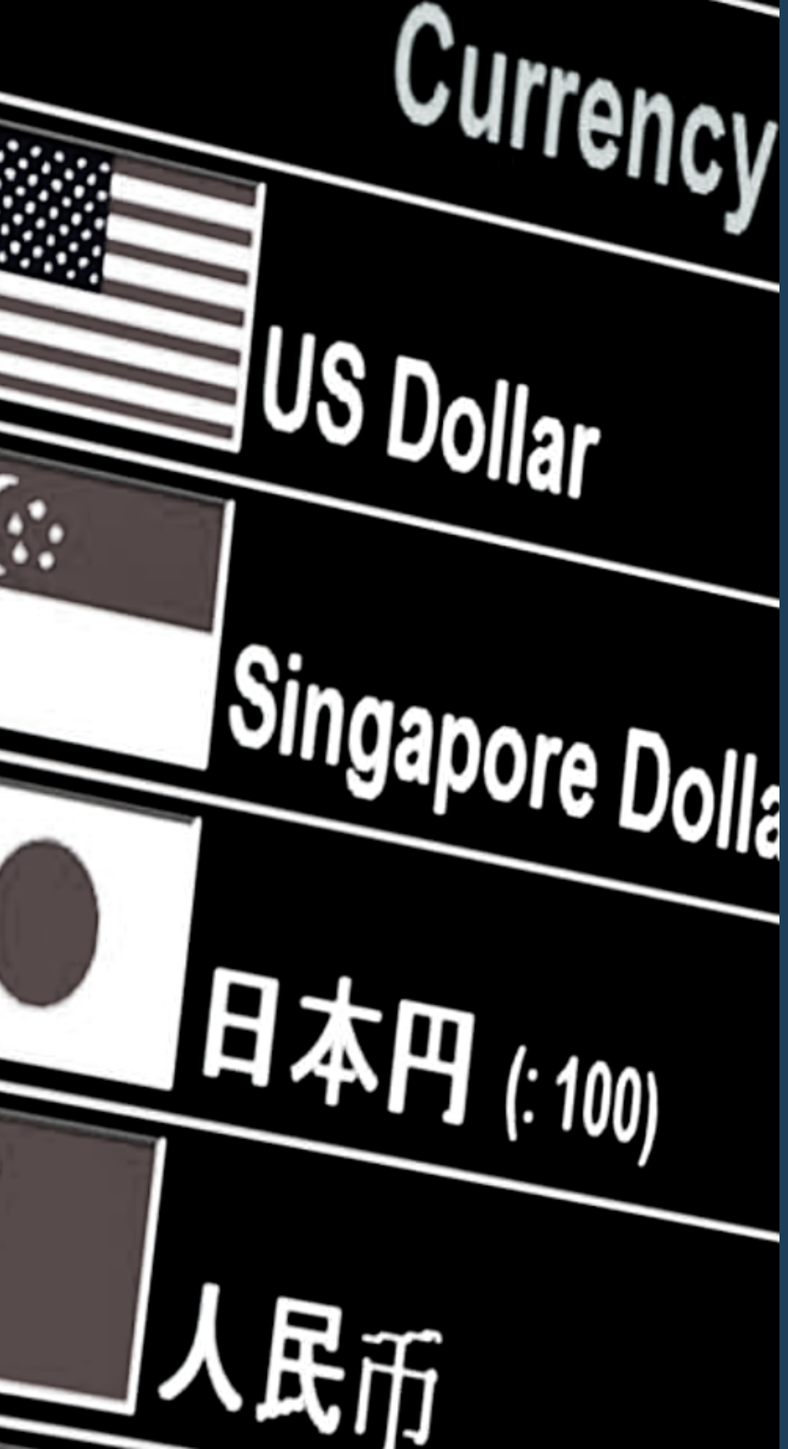

# Implementation goals

## created a class joe's currency converter

The class has many methods for:

- getting data .
- slicing data.
- using data to preform calculations.
- showing tables of rates.

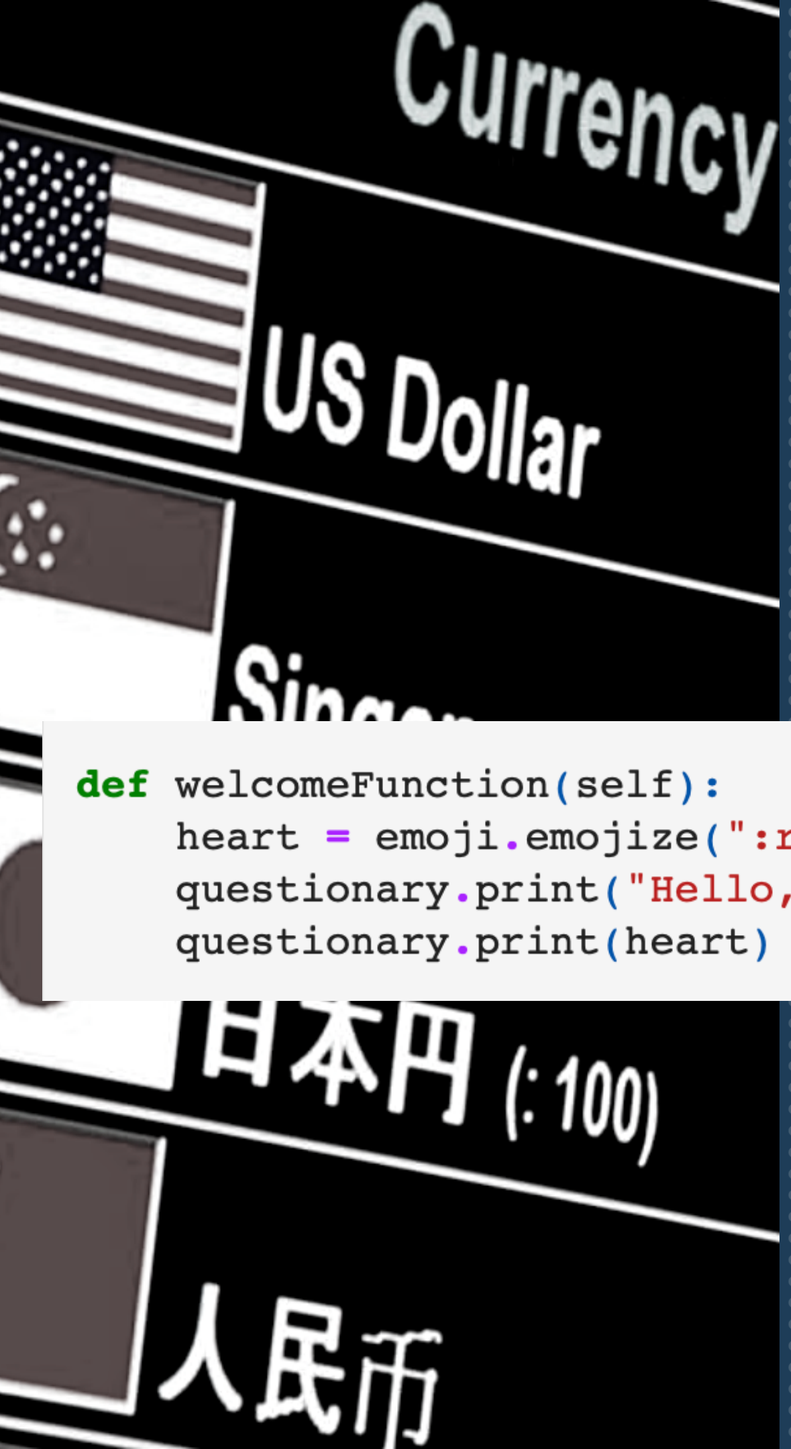



# 1- Class Initialization

- **URL**
- **DATA**
- **RATE**

__init__ initializes the class with attributes.

```
class JoeCurrencyConverter:
    def __init__(self, url = url_data):
        "These has all the attributes of the class"
        self.url = url_data
        self.data = self.getData()
        self.rate = self.data['rates']
```

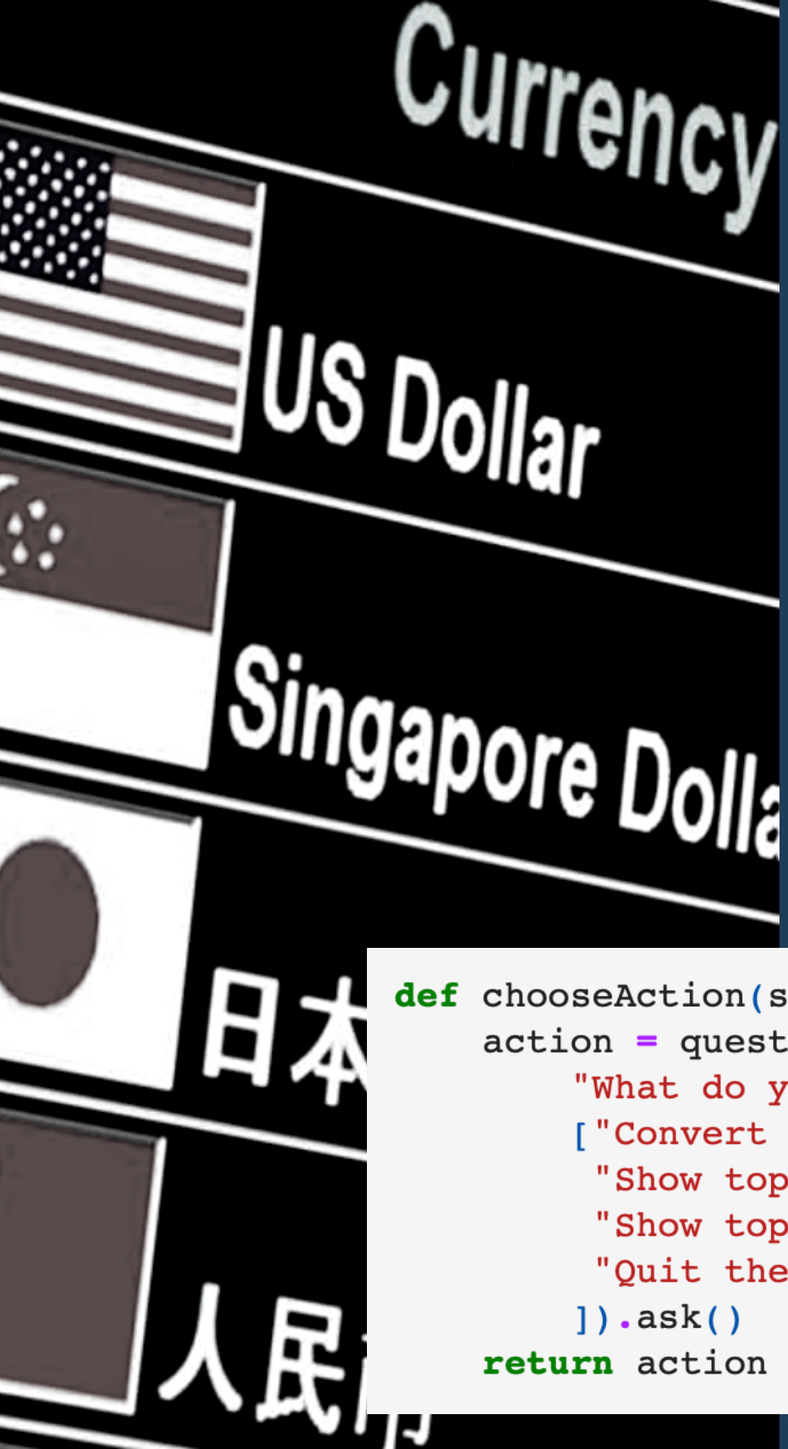



# 2- Welcome Function

- **Greets the user and uses the emoji library to generate hearts.**

" Hello, welcome to joe's Currency Converter"

```
def welcomeFunction(self):
    heart = emoji.emojize(":red_heart: :red_heart: :red_heart:",variant="emoji_type")
    questionary.print("Hello, welcome to Joe's Currency Converter", style="bold italic fg:darkred")
    questionary.print(heart)
```




# 3- Choose Action

- **we use questionary.rawselect to select between different options.**

1- convert currencies.

2- Top highest currencies.

3- Top lowest currencies.

4- Quit

```
def chooseAction(self):
    action = questionary.rawselect(
        "What do you want to do? , \n Please click on the number you would like to choose from your
        ["Convert currencies.",
         "Show top 10 highest currencies.",
         "Show top 10 lowest currencies.",
         "Quit the program."
        ]).ask()
    return action
```


# 4- getData

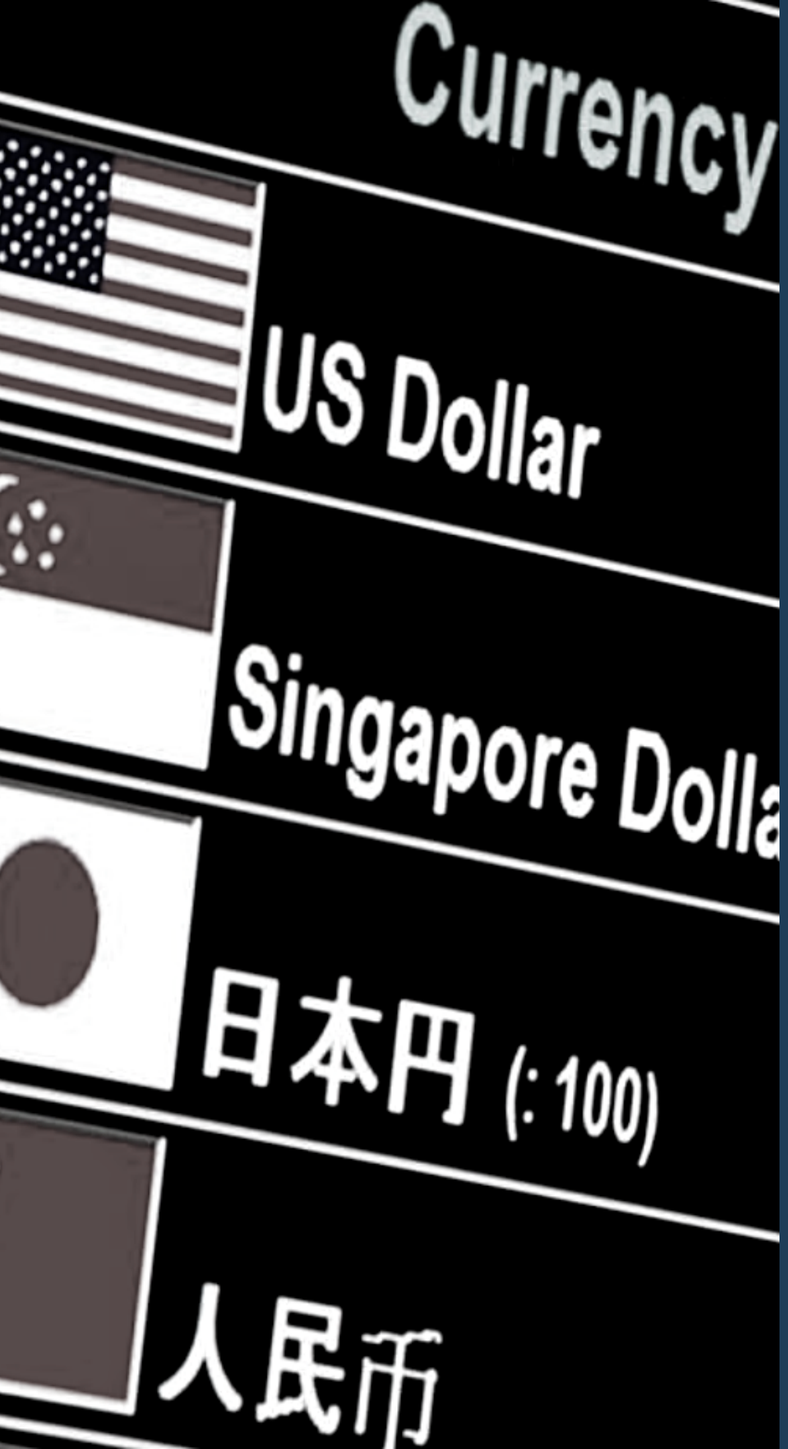
Using the requests library to get real-time currency rate from the exchange rate API

```
def getData(self):
    """
    To get the data using the exchangerate api
    """
    return requests.get(self.url).json()
```


# 5-Show Data

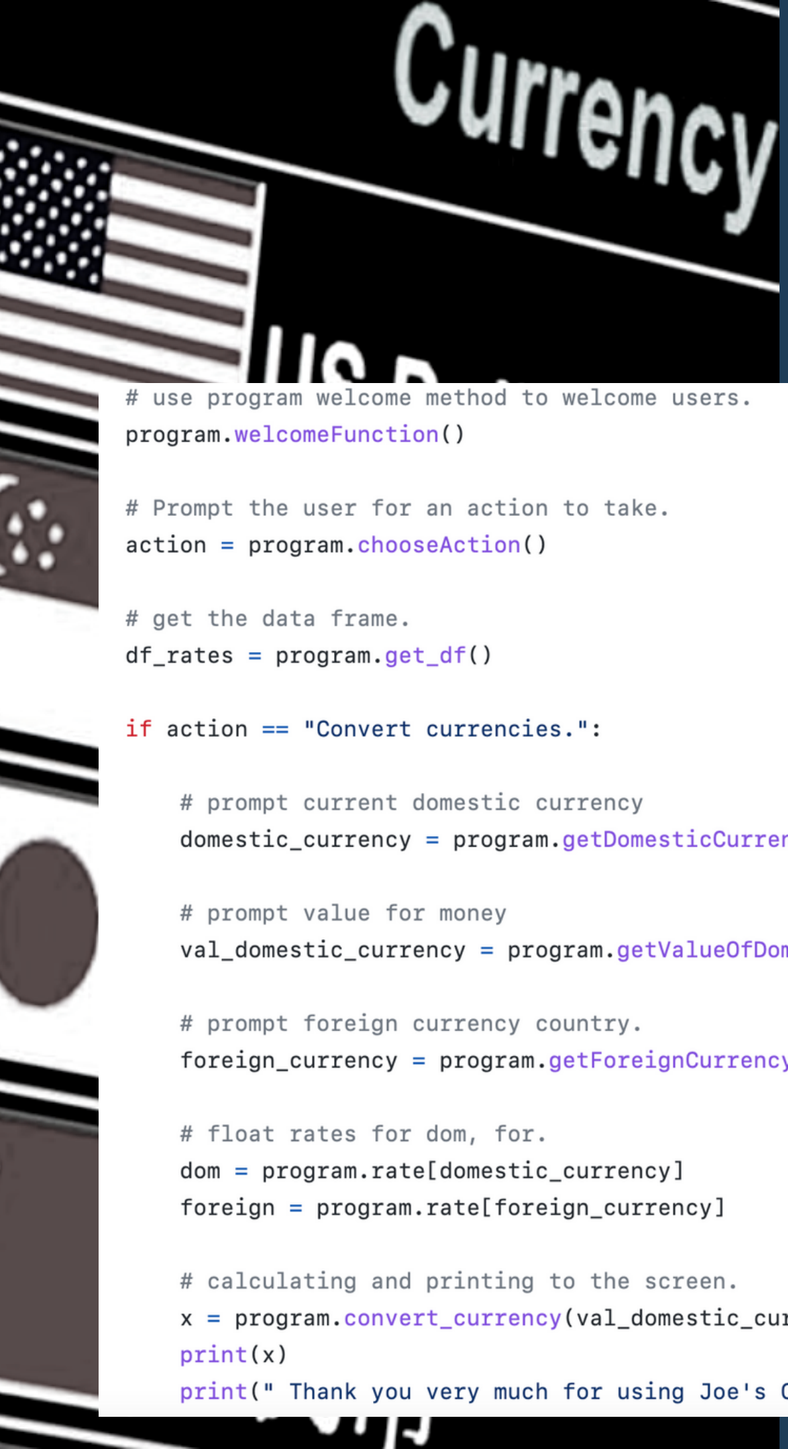
Function for the programmer, not the user, to view how the data from the exchange rate API is formatted

```
def showData(self, data):
    """
    To show the data
    """
    # Display the response data
    print(json.dumps(data, indent=4, sort_keys=True))
```




# 6- Intialize the joe converter class object

```
def run():

    # create JoeCurrencyConverter object.
    program = JoeCurrencyConverter()
```




# 7- Program Sequence

- Welcome Function
- Choose action method
- get data frame method
- Perform Action

```
# use program welcome method to welcome users.
program.welcomeFunction()

# Prompt the user for an action to take.
action = program.chooseAction()

# get the data frame.
df_rates = program.get_df()

if action == "Convert currencies.":

    # prompt current domestic currency
    domestic_currency = program.getDomesticCurrency()

    # prompt value for money
    val_domestic_currency = program.getValueOfDomesticCurrency()

    # prompt foreign currency country.
    foreign_currency = program.getForeignCurrency()

    # float rates for dom, for.
    dom = program.rate[domestic_currency]
    foreign = program.rate[foreign_currency]

    # calculating and printing to the screen.
    x = program.convert_currency(val_domestic_currency, dom, foreign)
    print(x)
    print(" Thank you very much for using Joe's Currency converter!!!! ")
```

```
elif action == "Show top 10 highest currencies.":
    # show the highest rates
    program.show_top_highest_10(df_rates)
    print(" Thank you very much for using !!!! ")
elif action == "Show top 10 lowest currencies.":
    # show the lowest rates.
    program.show_top_lowest_10(df_rates)
    print(" Thank you very much for using Joe's Currency Converter !!!! ")
else:
    # quit the whole program
    program.quit()
```

# Images with brief description.

HOW DO WE GET THERE?

# CREATION OF TECHNOLOGY

```
♥ ♥ ♥
? What do you want to do? ,
 Please click on the number you would like to choose from your keyboard. (Use shortcuts)
 » 1) Convert currencies.
   2) Show top 10 highest currencies.
   3) Show top 10 lowest currencies.
   4) Quit the program.
```

## 1- OPENING AND SELECT A CHOICE

when you open the program, welcome message, and you can choose the first choice to convert between currencies.

```
Hello, welcome to Joe's Currency Converter
♥ ♥ ♥
? What do you want to do? ,
 Please click on the number you would like to choose from your keyboard. (Use shortcuts)
   1) Convert currencies.
 » 2) Show top 10 highest currencies.
   3) Show top 10 lowest currencies.
   4) Quit the program.
```

## 2- CONVERTING BETWEEN CURRENCIES

In case you choose number 1, you have to select your domestic currency.
Then you have to enter the value.
At last, you have to select your foreign currency.

```
? Which Domestic would you like to change from ?  USD
You chose USD as your Domestic Currency
? Enter the Value needed to be changed ....  50.0
```

```
? Which Domestic would you like to change from ?  (Use arrow keys)
 » USD
   AED
   AFN
   ALL
   AMD
   ANG
   AOA
   ARS
   AUD
```

```
? Enter the Value needed to be changed ....  50.0
value entered is
50.0
? Which Foreign currency would you like to ?  (Use arrow keys)
    USD
  » AED
    AFN
```

## 3-GETTING THE RESULT

the result and thank you a message.

```
? Which Foreign currency would you like to ?  AED
You chose AED as your Foreign Currency
183.5
183.5
 Thank you very much for using Joe's Currency converter!!!!
```

## 4- IF THE USER WILL SELECT CHOICE #2

it will show the user the top highest currencies.

```
Hello, welcome to Joe's Currency Converter
♥ ♥ ♥
? What do you want to do? ,
 Please click on the number you would like to choose from your keyboard. Show top 10 highest currencies.
    country_ticker  rates
KWD             KWD  0.300
BHD             BHD  0.376
OMR             OMR  0.384
JOD             JOD  0.709
XDR             XDR  0.715
FKP             FKP  0.749
GBP             GBP  0.749
GGP             GGP  0.749
GIP             GIP  0.749
SHP             SHP  0.749
```

## 5- IF THE USER WILL SELECT CHOICE #3

it will show the user the lowest 10 currencies.

```
Hello, welcome to Joe's Currency Converter
♥ ♥ ♥
? What do you want to do? ,
 Please click on the number you would like to choose from your keyboard. Show top 10 lowest currencies.
    country_ticker     rates
IRR            IRR  41993.53
VND            VND  22634.85
IDR            IDR  14280.46
SLL            SLL  10962.72
LAK            LAK  10769.13
UZS            UZS  10735.86
GNF            GNF   9532.80
PYG            PYG   6824.91
KHR            KHR   4060.27
MGA            MGA   3982.31
 Thank you very much for using Joe's Currency Converter !!!!
PS C:\Users\omarm\PycharmProjects\pythonProject1>
```

## 6- QUIT THE PROGRAM

thank you message and quit the program.

```
Hello, welcome to Joe's Currency Converter
♥ ♥ ♥
? What do you want to do? ,
 Please click on the number you would like to choose from your keyboard. Quit the program.
Goodbye, hope to see you again!
PS C:\Users\omarm\PycharmProjects\pythonProject1>
```

# THANK YOU

YOUSSEF SAID